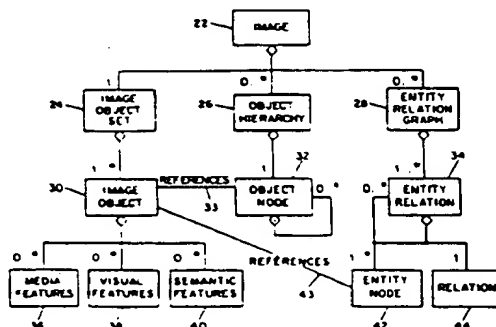




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(21) International Application Number: PCT/US99/26127 (22) International Filing Date: 5 November 1999 (05.11.99)  (30) Priority Data: 60/107,463 6 November 1998 (06.11.98) US 60/118,020 1 February 1999 (01.02.99) US 60/118,027 1 February 1999 (01.02.99) US  (71) Applicants (for all designated States except US): THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK [US/US]; Broadway & 116th Street, New York, NY 10027 (US). AT & T [US/US]; AT & T Labs, Redbank, NJ (US). IBM [US/US]; T.J. Watson Research Center, Hawthorne, NY (US). EASTMAN KODAK [US/US]; Rochester, NY (US).  (72) Inventors; and (75) Inventors/Applicants (for US only): PAEK, Seungyup [KR/US]; Apartment 6J, 530 Riverside Drive, New York, NY 10027 (US). BENITEZ, Ana [ES/US]; Apartment 9F, 400 West 119th Street, New York, NY 10027 (US). CHANG, Shih-Fu [-/US]; Apartment 18K, 560 Riverside Drive, New York, NY 10027 (US). LI, Chung-Sheng [-/US]; IBM, T.J. Watson Research Center, Hawthorne, NY			(US). SMITH, John, R. [-/US]; IBM, T.J. Watson Research Center, Hawthorne, NY (US). BERGMAN, Lawrence, D. [-/US]; IBM, T.J. Watson Research Center, Hawthorne, NY (US). PURI, Atul [-/US]; AT & T Labs, Redbank, NJ (US). HUANG, Qian [-/US]; AT & T Labs, Redbank, NJ (US). JUDICE, Charlie [-/US]; Eastman Kodak, Rochester, NY (US).  (74) Agent: TANG, Henry; Baker & Borts, LLP, 30 Rockefeller Plaza, New York, NY 10112-0228 (US).  (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: IMAGE DESCRIPTION SYSTEM AND METHOD



## (57) Abstract

Systems and methods for describing image content establish image description records which include an object set (24), an object hierarchy (26) and entity relation graphs (28). For image content, image objects can include global objects (O0 8) and local objects (O1 2 and O2 6). The image objects are further defined by a number of features of different classes (36, 38 and 40), which in turn are further defined by a number of feature descriptors. The relationships between and among the objects in the object set are defined by the object hierarchy (26) and entity relation graphs (28). The image description records provide a standard vehicle for describing the content and context of image information for subsequent access and processing by computer applications such as search engines, filters, and archive systems.

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